What is claimed is:

1. A CCD imaging device comprising:

a plurality of photodetecting portions that are arranged two-dimensionally;

a plurality of vertical CCD registers for transferring, in a vertical direction, signal charges that are output from the respective photodetecting portions; and

a single horizontal CCD register for transferring, in a horizontal transfer direction, signal charges that have been transferred by the vertical CCD registers, the horizontal CCD register having horizontal transfer electrodes in such a manner that four transfer electrodes that are provided so as to correspond to each of the vertical CCD registers are independent of each other electrically.

2. The CCD imaging device according to claim 1, wherein the four transfer electrodes that are independent of each other electrically are divided into two pairs of transfer electrodes, and wherein each pair of transfer electrodes are driven in phase in a state that they are given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction.

3. The CCD imaging device according to claim 1, wherein 4n transfer electrodes of the horizontal CCD register that correspond to each set of n vertical CCD registers adjacent to each other can be driven independently of each other

electrically, where n is greater than or equal to 2.

4. The CCD imaging device according to claim 3, wherein in a state that the four transfer electrodes that are independent of each other electrically are given prescribed voltage differences in such a manner that the potential becomes deeper in the horizontal transfer direction, a set of four transfer electrodes corresponding to each vertical CCD register are driven in phase and two sets of four transfer electrodes corresponding to each pair of vertical CCD registers adjacent to each other are driven in opposite phases, whereby signal charges that have been transferred by each pair of vertical CCD registers adjacent to each other are mixed with each other.

5. The CCD imaging device according to claim 3, wherein signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other by driving the horizontal CCD register in 4n phases.

6. The CCD imaging device according to claim 3, wherein in a state that each pair of transfer electrodes adjacent to each other are supplied with the same voltage or given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction, the horizontal CCD register is driven in 2n phases, whereby signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other by driving the horizontal CCD register in 2n phases.

7. A CCD imaging device comprising:

a plurality of photodetecting portions that are arranged two-dimensionally;

a plurality of vertical CCD registers for transferring, in a vertical direction, signal charges that are output from the respective photodetecting portions; and

m horizontal CCD registers for transferring, in a horizontal transfer direction, signal charges that have been transferred by the vertical CCD registers, the m horizontal CCD registers having horizontal transfer electrodes in such a manner that all of transfer electrodes that are provided so as to correspond to each of the vertical CCD registers are independent of each other electrically.

8. The CCD imaging device according to claim 7, wherein the transfer electrodes that are independent of each other electrically are divided into pairs of transfer electrodes, and wherein each pair of transfer electrodes are drive in phase in a state that they are given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction.

9. The CCD imaging device according to claim 7, wherein transfer electrodes of the m horizontal CCD registers that correspond to each set of n vertical CCD registers adjacent to each other can be driven independently of each other electrically, where n is greater than or equal to 2.

10. The CCD imaging device according to claim 7, wherein in a state that the transfer electrodes that are independent of each other electrically are given prescribed voltage differences in such a manner that the potential becomes deeper in the horizontal transfer direction, a set of transfer electrodes corresponding to each vertical CCD register are driven in phase and two sets of transfer electrodes corresponding to each pair of vertical CCD registers adjacent to each other are driven in opposite phases, whereby signal charges that have been transferred by each pair of vertical CCD registers adjacent to each other are mixed with each other.

11. The CCD imaging device according to claim 7, wherein signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other by driving the m horizontal CCD registers in a prescribed number of phases, the prescribed number being equal to the number of transfer electrodes of the m horizontal CCD registers corresponding to the n vertical CCD registers.

12. The CCD imaging device according to claim 7, wherein in a state that each set of two or more transfer electrodes adjacent to each other are supplied with the same voltage or given a prescribed voltage difference or differences in such a manner that the potential becomes deeper in the horizontal transfer direction, the m horizontal CCD registers are driven in a prescribed number of phases, whereby signal charges that

have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other.

13. A driving method of a CCD imaging device comprising a plurality of photodetecting portions that are arranged two-dimensionally, a plurality of vertical CCD registers for transferring, in a vertical direction, signal charges that are output from the respective photodetecting portions, and a single horizontal CCD register for transferring, in a horizontal transfer direction, signal charges that have been transferred by the vertical CCD registers, wherein:

the horizontal CCD register has horizontal transfer electrodes in such a manner that four transfer electrodes that are provided so as to correspond to each of the vertical CCD registers are independent of each other electrically; and

the four transfer electrodes are driven by independent drive pulse signals.

14. The driving method according to claim 13, wherein the four transfer electrodes that are independent of each other electrically are divided into two pairs of transfer electrodes, and wherein each pair of transfer electrodes are driven in phase in a state that they are given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction.

15. The driving method according to claim 13, wherein 4n transfer electrodes of the horizontal CCD register that

correspond to each set of n vertical CCD registers adjacent to each other can be driven independently of each other electrically, where n is greater than or equal to 2.

16. The driving method according to claim 15, wherein in a state that the four transfer electrodes that are independent of each other electrically are given prescribed voltage differences in such a manner that the potential becomes deeper in the horizontal transfer direction, a set of four transfer electrodes corresponding to each vertical CCD register are driven in phase and two sets of four transfer electrodes corresponding to each pair of vertical CCD registers adjacent to each other are driven in opposite phases, whereby signal charges that have been transferred by each pair of vertical CCD registers adjacent to each other are mixed with each other.

17. The driving method according to claim 15, wherein signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other by driving the horizontal CCD register in 4n phases.

18. The driving method according to claim 15, wherein in a state that each pair of transfer electrodes adjacent to each other are supplied with the same voltage or given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction, the horizontal CCD register is driven in 2n phases, whereby signal charges that have been transferred by each set of n

vertical CCD registers adjacent to each other are mixed with each other.

19. A driving method of a CCD imaging device comprising a plurality of photodetecting portions that are arranged two-dimensionally, a plurality of vertical CCD registers for transferring, in a vertical direction, signal charges that are output from the respective photodetecting portions, and m horizontal CCD registers for transferring, in a horizontal transfer direction, signal charges that have been transferred by the vertical CCD registers, wherein:

the m horizontal CCD registers have horizontal transfer electrodes in such a manner that all of transfer electrodes that are provided so as to correspond to each of the vertical CCD registers are independent of each other electrically; and

the transfer electrodes corresponding to each of the vertical CCD registers are driven by independent drive pulse signals.

20. The driving method according to claim 19, wherein the transfer electrodes that are independent of each other electrically are divided into pairs of transfer electrodes, and wherein each pair of transfer electrodes are drive in phase in a state that they are given a prescribed voltage difference in such a manner that the potential becomes deeper in the horizontal transfer direction.

21. The driving method according to claim 19, wherein

transfer electrodes of the m horizontal CCD registers that correspond to each set of n vertical CCD registers adjacent to each other can be driven independently of each other electrically, where n is greater than or equal to 2.

22. The driving method according to claim 19, wherein in a state that the transfer electrodes that are independent of each other electrically are given prescribed voltage differences in such a manner that the potential becomes deeper in the horizontal transfer direction, a set of transfer electrodes corresponding to each vertical CCD register are driven in phase and two sets of transfer electrodes corresponding to each pair of vertical CCD registers adjacent to each other are driven in opposite phases, whereby signal charges that have been transferred by each pair of vertical CCD registers adjacent to each other are mixed with each other.

23. The driving method according to claim 19, wherein signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other by driving the m horizontal CCD registers in a prescribed number of phases, the prescribed number being equal to the number of transfer electrodes of the m horizontal CCD registers corresponding to the n vertical CCD registers.

24. The driving method according to claim 19, wherein in a state that each set of two or more transfer electrodes adjacent to each other are supplied with the same voltage or

given a prescribed voltage difference or differences in such a manner that the potential becomes deeper in the horizontal transfer direction, the m horizontal CCD registers are driven in a prescribed number of phases, whereby signal charges that have been transferred by each set of n vertical CCD registers adjacent to each other are mixed with each other.